

# ULTRASOUND

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## INSTALLATION GUIDE

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In your UltraSound package you will find:

- This Installation Guide, a User's Guide, and a Bonus Software Guide
- UltraSound card in a static protection bag
- Envelope with software disks inside
- Registration Card
- Various brochures

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## Hardware Installation

### Ports and Jumpers

The Base Port Address is the only jumper you may have to set on the card. You won't have to change the jumper setting unless another device in your system is using the Base Port default address of 220 Hex. If this is the case, refer to Appendix A in the User's Guide for alternate addresses.

You'll be prompted to choose settings when you install the software, and the Setup program will test your hardware settings.

### Installing the UltraSound Card

These instructions are a supplement to the expansion card installation instructions in your computer's manual.

**Note!** *For instructions on CD-ROM data interfaces, see page 7.*

The UltraSound is designed to fit into any full-sized 16-bit ISA (Industry Standard Architecture) expansion slot in an IBM compatible 386 or faster computer.

**Note!** *Static electricity can damage your computer's components and your UltraSound card. Turn off your computer (don't unplug it). Then touch the computer's case to discharge static electricity before removing the UltraSound card from its anti-static package or starting the installation.*



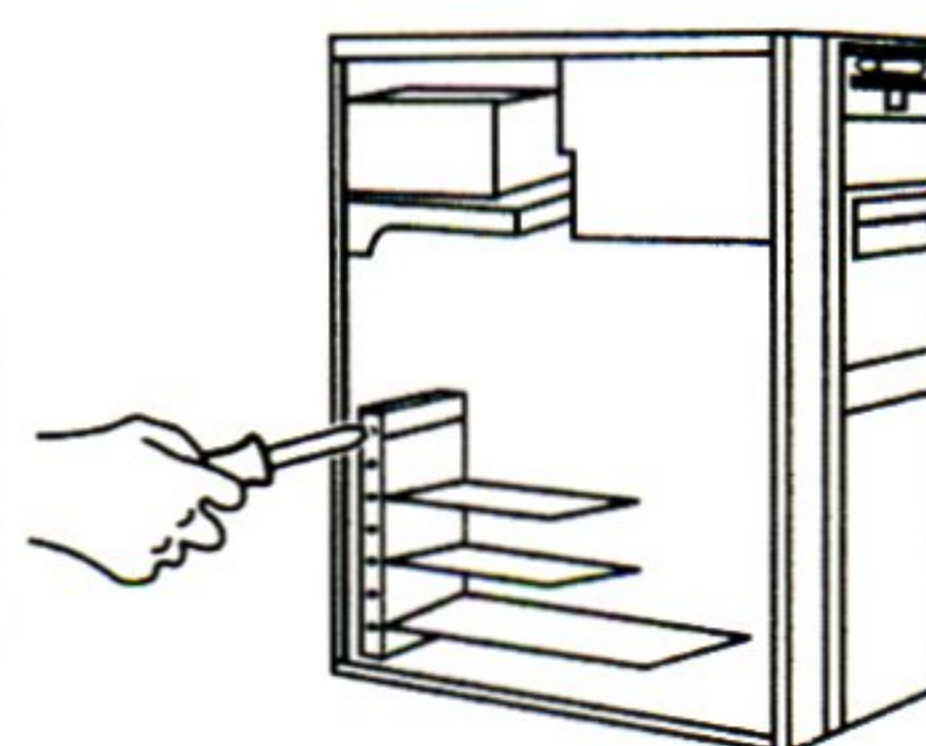
- ◆ Unscrew and slide or lift the cover off your computer (*fig. 1*). Refer to the computer's manual if you need additional instructions to remove the cover.
- ◆ Unscrew and remove the bracket/slot cover from an empty expansion slot (*fig. 2*). Use a slot as far away as possible from your video card.

**Note!** *Video boards and disk controllers may emit interference that affects a sound card's sound quality.*

- ◆ Grasp the UltraSound card by its top edge and press it firmly into the expansion slot (*fig. 3*). Use a gentle rocking motion to seat the card properly.

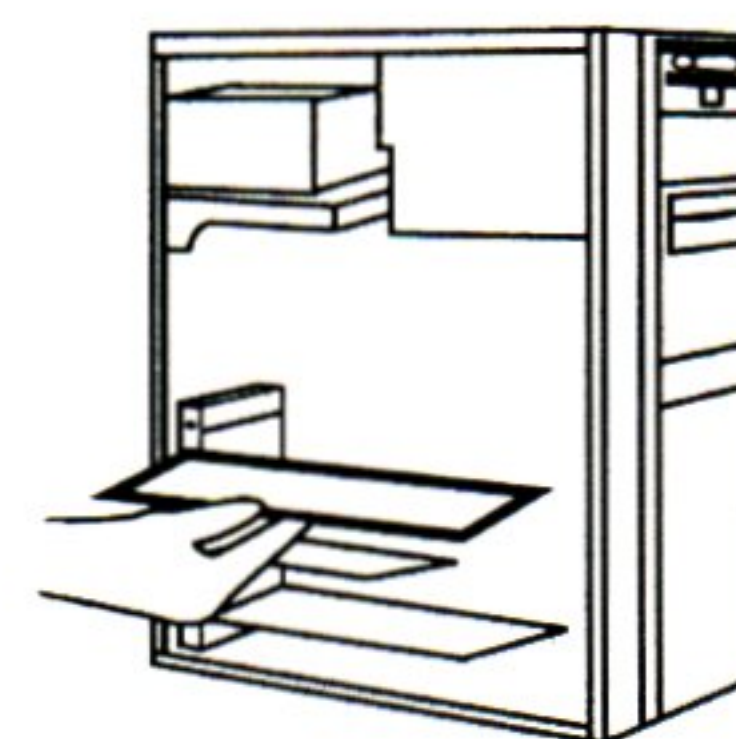


*Fig. 1 – Sliding off computer's cover.*



*Fig. 2 – Removing slot cover*

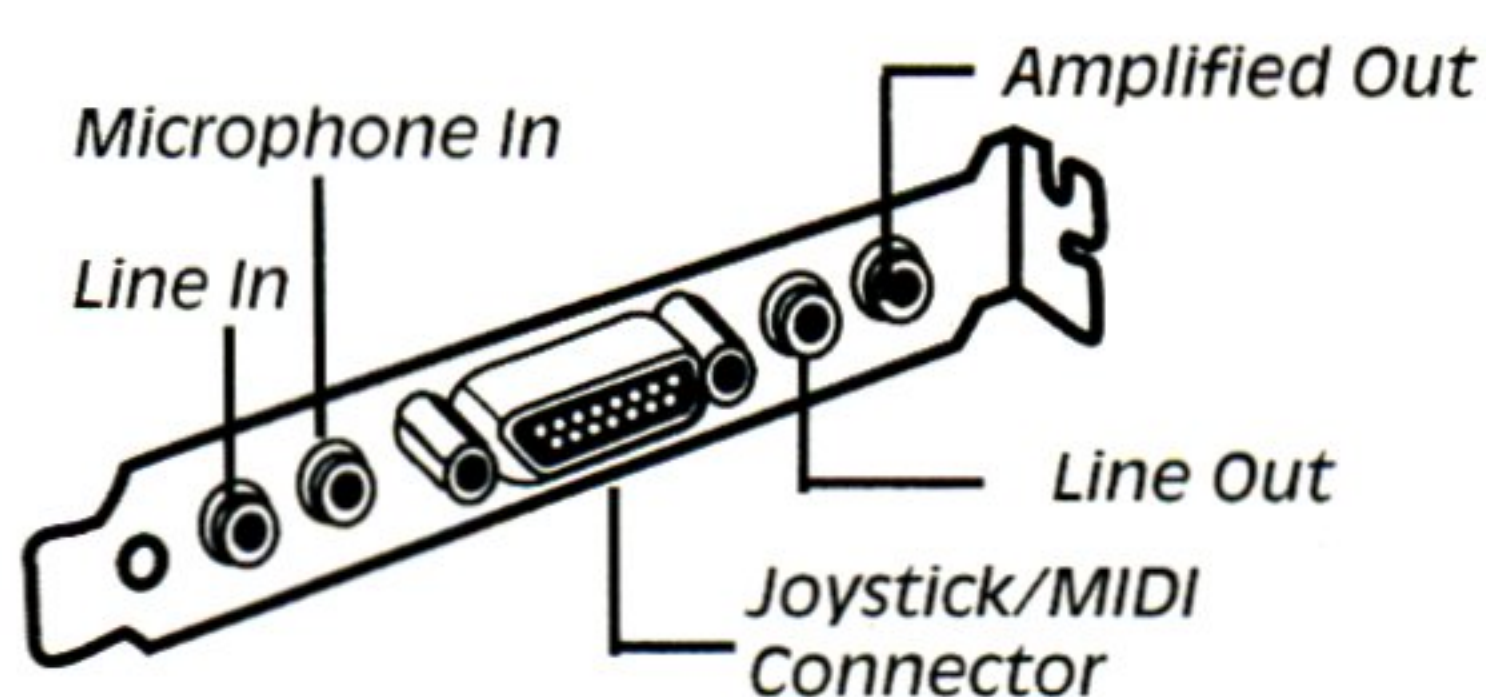
- ◆ Secure the UltraSound's bracket with the slot cover screw.
- ◆ Leave the computer's cover off until after you install the software. The software tests your hardware, so if you have difficulties you won't have to remove the cover twice! Use caution when the cover is off.
- ◆ Reattach any cables that you may have removed.



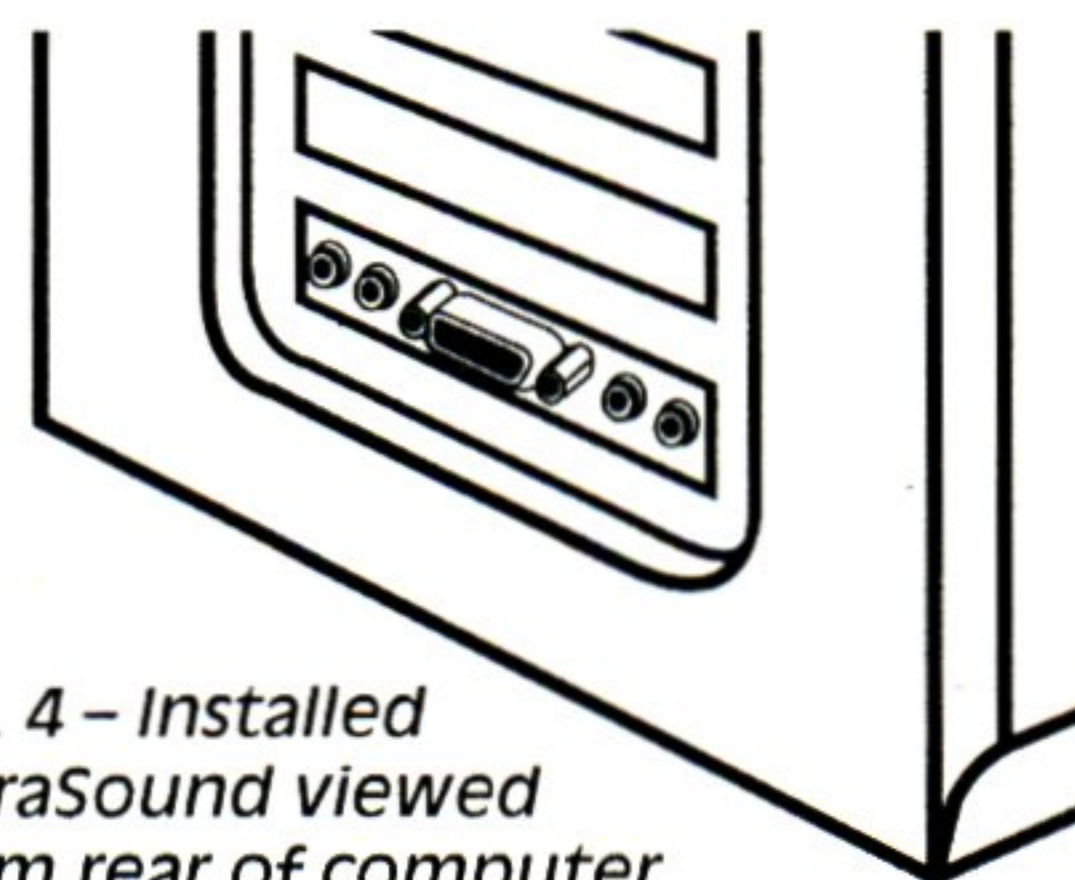
*Fig. 3 – Inserting the UltraSound*

## Cables and Connections

Here is a description of the connectors on the UltraSound (*fig. 5*) and the devices that can be connected.



*Fig. 5 – UltraSound Mounting Plate*

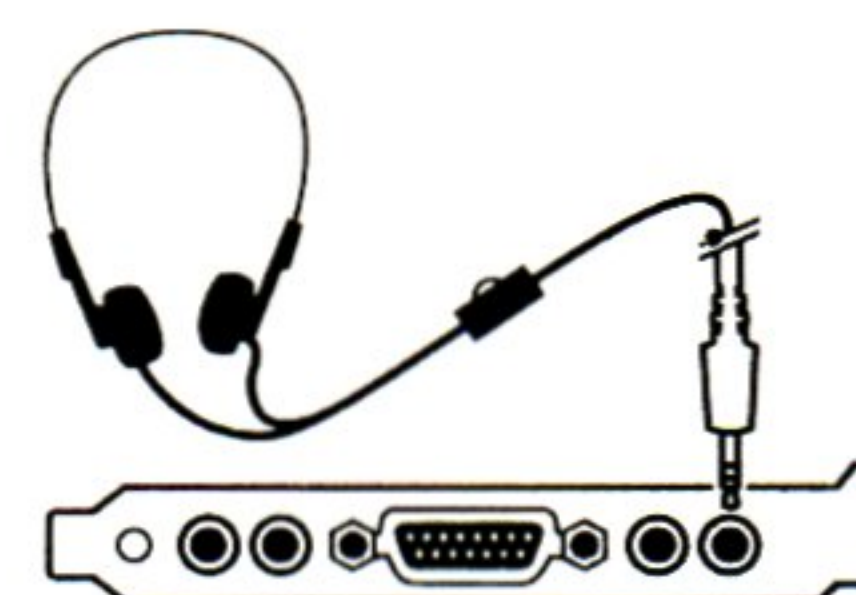


*Fig. 4 – Installed UltraSound viewed from rear of computer*

### (a) Amplified Out

**Note!** *Use a stereo mini plug only! A mono plug may damage the built-in amplifier.*

Amplified Out provides 2 watts per channel RMS, suitable for small headphones or desktop speakers. These low power devices can be connected with a stereo mini plug (*fig. 6*).



*Fig. 6 – Connecting to headphones*

Use only 1/8-inch (3.5mm) stereo mini plugs in the Amplified Out. Stereo mini plugs have 2 plastic (usually black) bands on the metal



shaft; mono mini plugs have 1 band. You can buy inexpensive adapters to convert 1/4-inch phone plugs to mini plugs.

**Note!** *Be careful when using headphones. High volume could damage your ears or your headphones. We strongly recommend headphones with a built-in volume control.*

Connect unamplified speakers to Amplified Out (fig. 7). Speakers with built-in amplifiers usually are connected to Line Out (fig. 8), but can be connected to Amplified Out instead if Line Out doesn't produce enough volume.

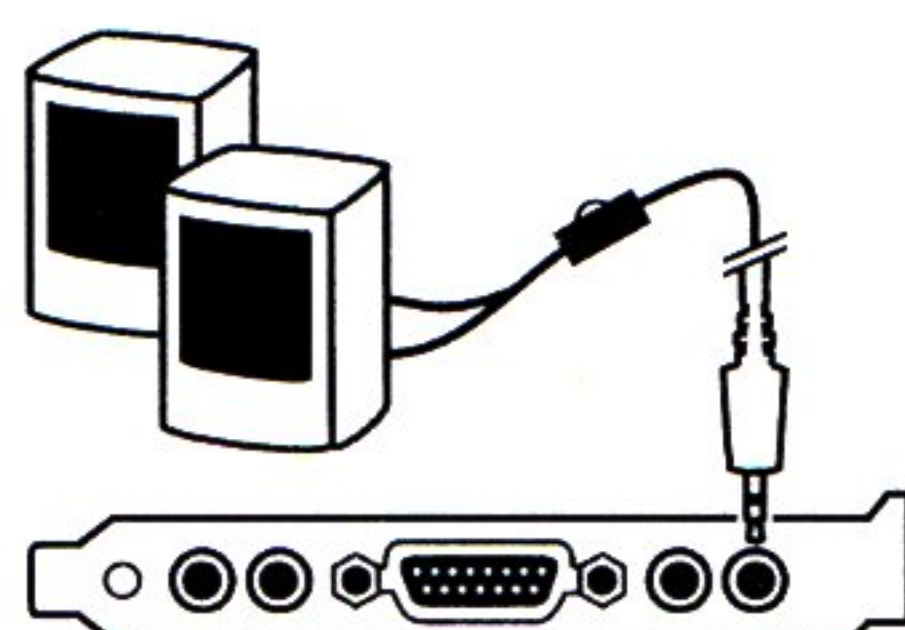


Fig. 7 – Connecting to unamplified speakers

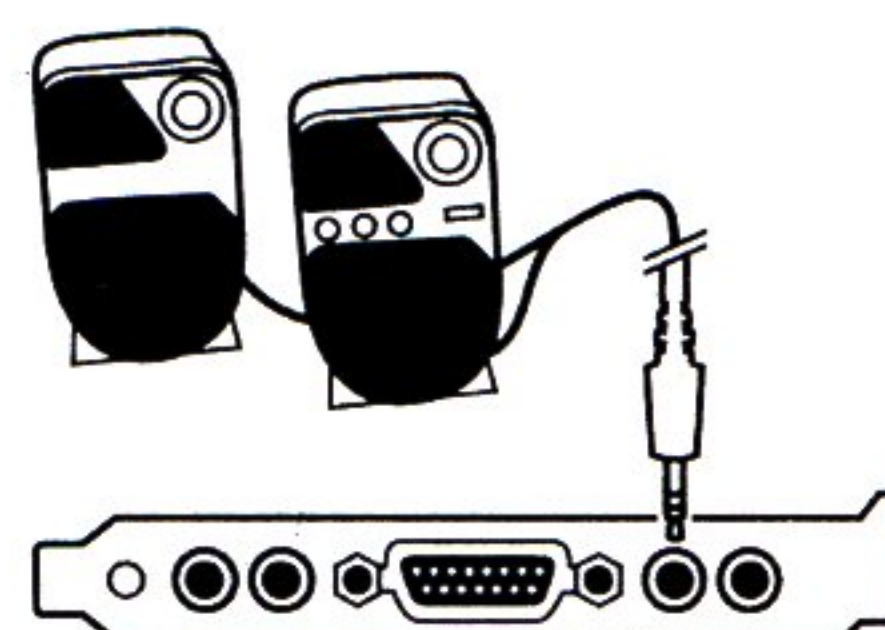


Fig. 8 – Connecting to speakers with built-in amplifiers

Speakers requiring more than 4 watts should use an external amplifier connected to UltraSound's Line Out.

### (b) Line Out

A standard stereo amplifier can be connected to Line Out with a stereo mini plug cable (fig. 9) to obtain the best quality sound. (You can buy inexpensive adapters to convert RCA plugs to mini plugs.)

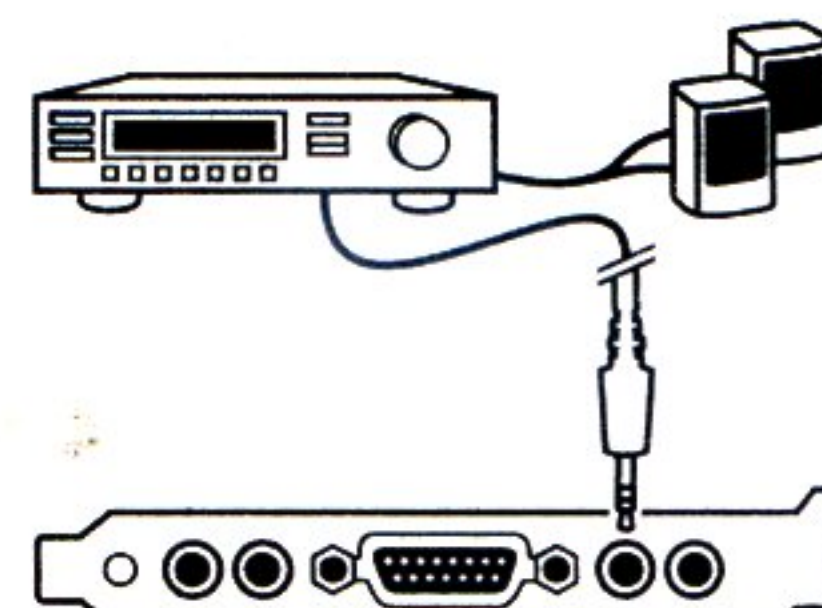


Fig.9 – Connecting to a stereo

Also use Line Out for speakers with built-in amplifiers (fig. 8). If the volume is too low, check your cables or try the Amplified Out.

### (c) Joystick/MIDI (D-15) Connector

The D-15 connector in the middle of the mounting plate serves two purposes. You can connect a joystick (such as a Gravis Analog®, Analog Pro® ) or Gravis PC GamePad™ (fig. 10 and 11). You can also attach a MIDI device with a MIDI Adapter available from Advanced Gravis (fig. 12).

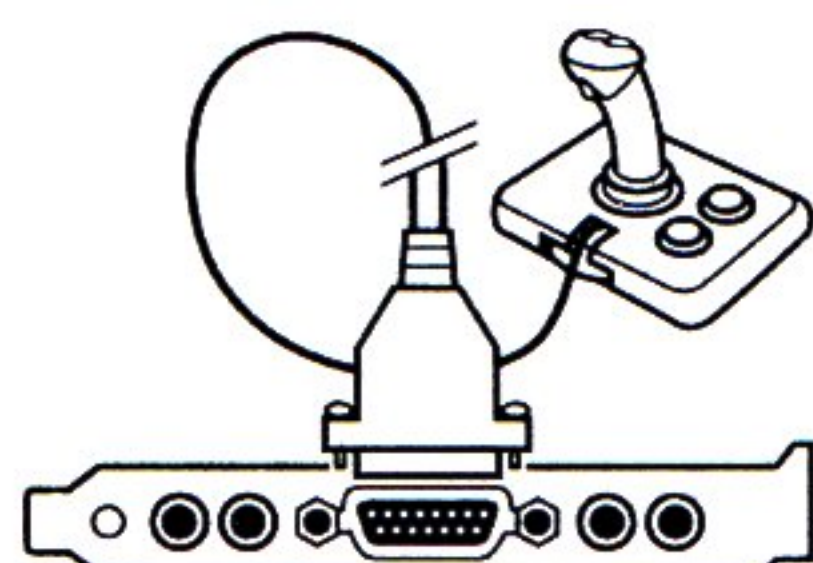


Fig. 10 – Joystick connection

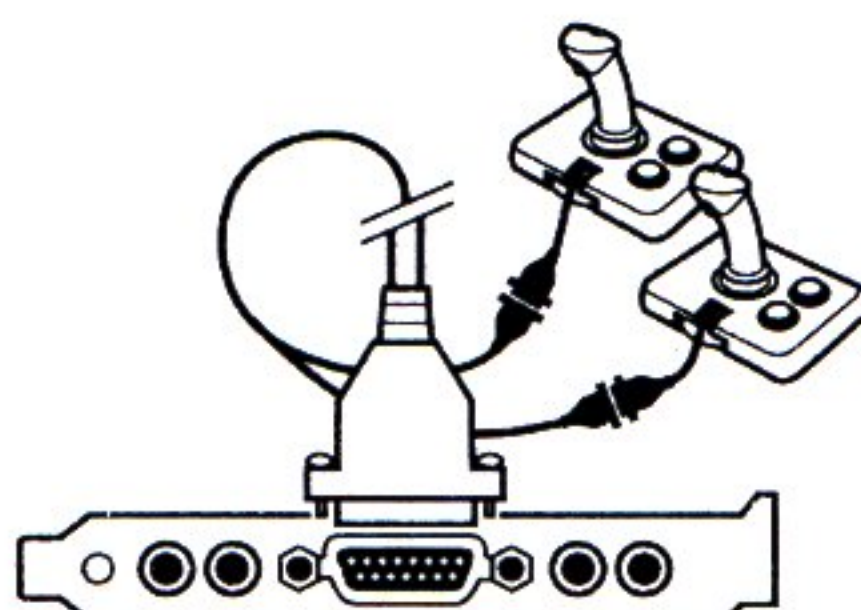


Fig. 11 – Connecting 2 joysticks with a Y-cable connection

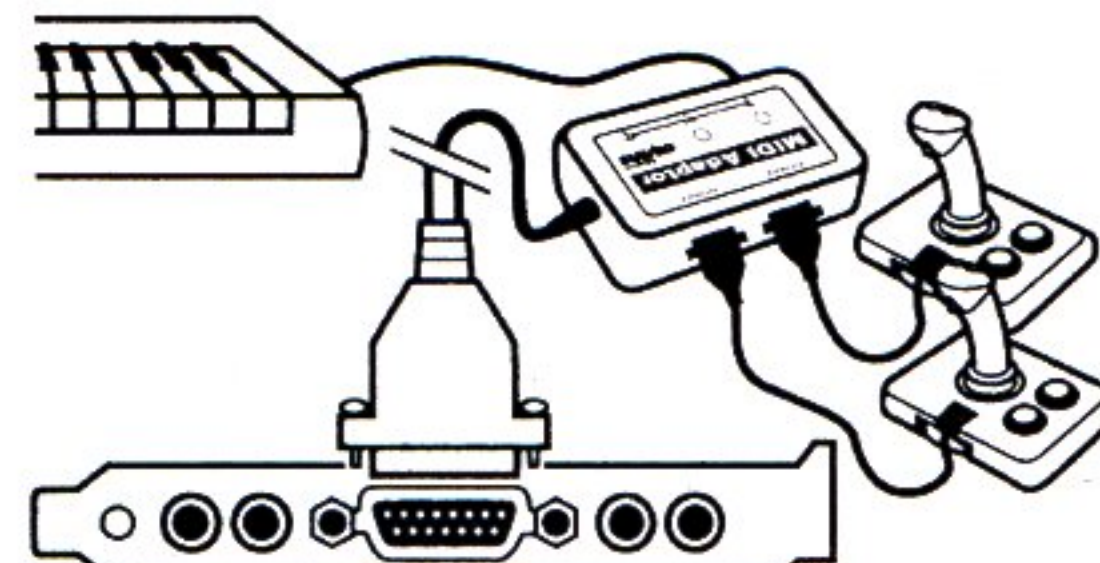


Fig. 12 – MIDI adapter connection



#### (d) Microphone In

A stereo mini plug lets you connect a mono dynamic or condenser microphone (fig. 13) to the powered Microphone In.

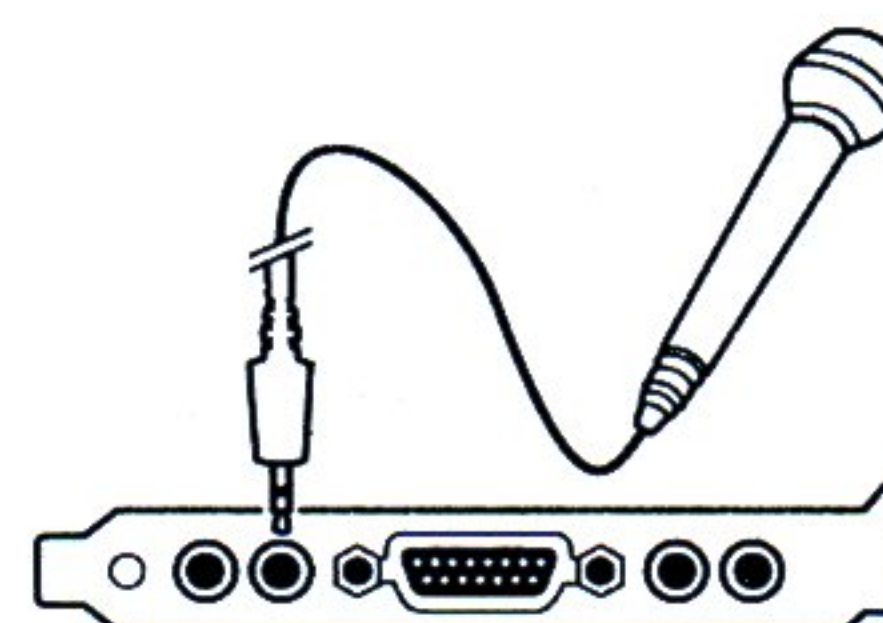


Fig. 13 – Microphone connection

**Note!** *Connect only microphones to Mic In and line level input to Line In. Do not overload by plugging in an amplified signal.*

#### (e) Line In

The Line In allows you to connect the Line Out of a CD player, cassette deck, or similar sound source through a stereo mini plug connector (fig. 14).

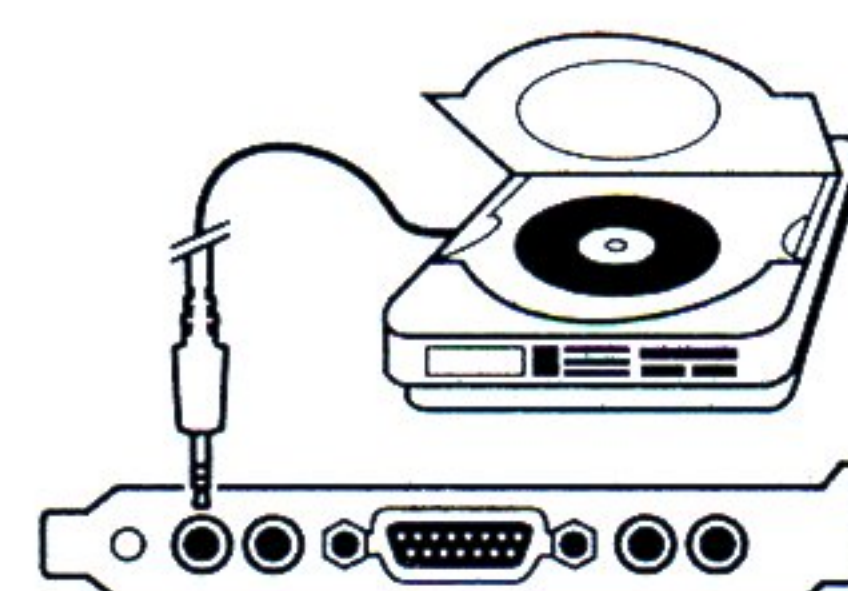


Fig 14 –Connecting to a stereo component

#### (f) CD Audio Input Connector

The CD Audio Input connector lets you connect to an internal CD-ROM audio output (figs. 15 and 16).

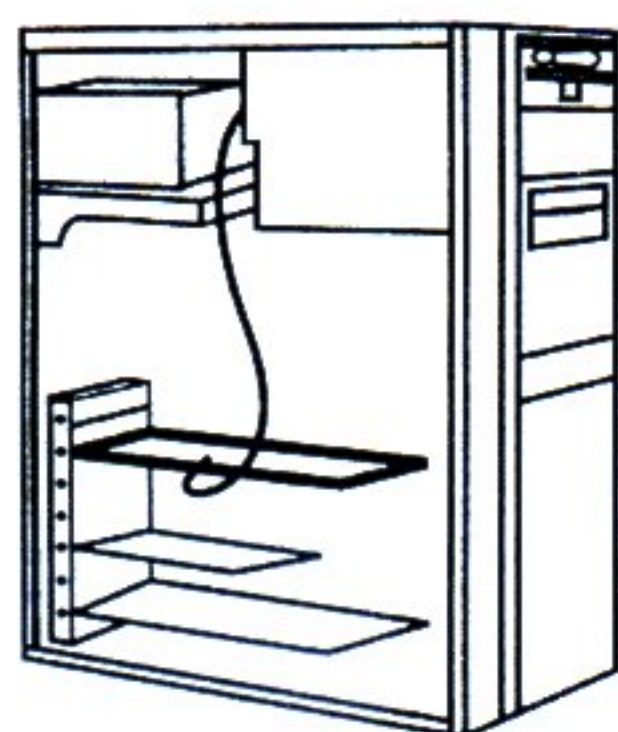


Fig. 15 – Connecting to an internal CD-ROM

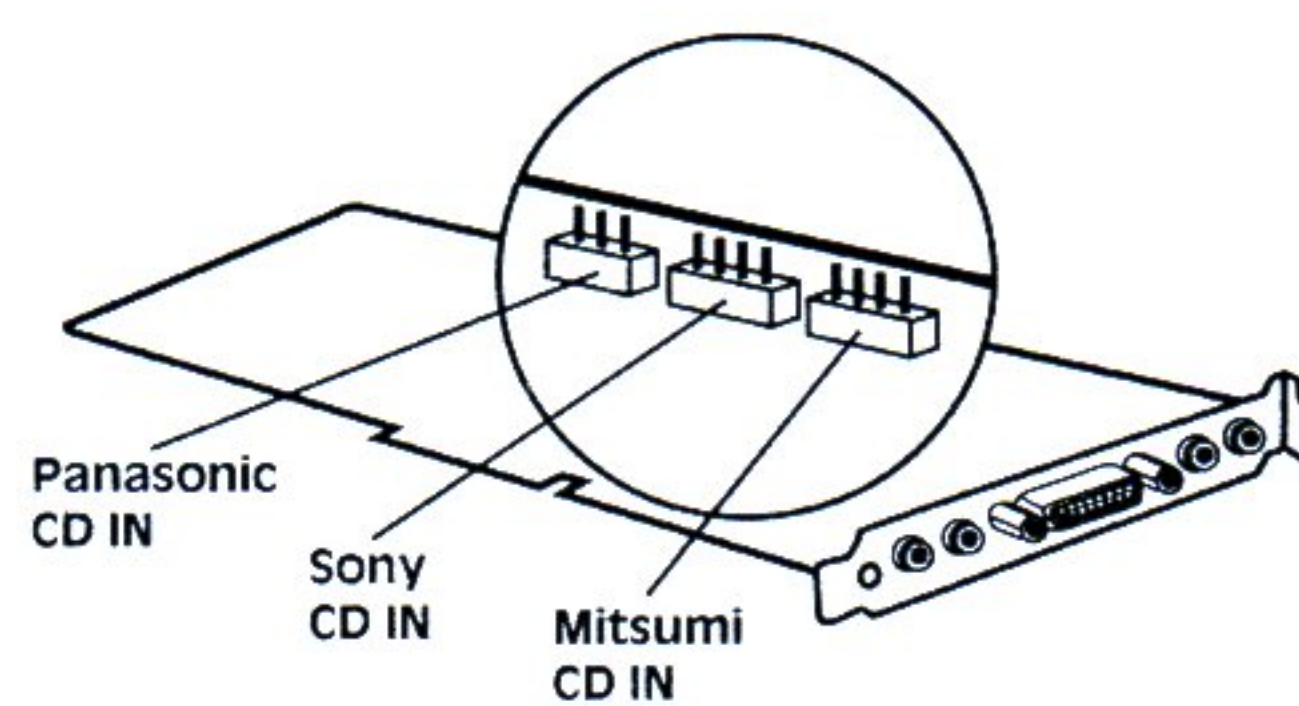


Fig. 16 – UltraSound MAX CD Audio In Connectors

## Software Installation

### About the UltraSound “README” File

The README contains the latest information about your UltraSound software. We recommend that you read this information before you install the software.

- ◆ Insert the UltraSound Disk 1 into drive A: (or B:).
- ◆ Type: A: (or B:)\GV <enter>

After a small delay, the first screen of the README file is displayed.

### Before you begin...

The software installation is done in DOS. The installed software requires about 15 MB of memory on your hard drive.

We recommend that you make a working copy of your original disks and remove any TSR (Terminate and Stay Resident) programs before installing software.



The UltraSound files are copied into C:\ULTRASND by default or into a directory you designate. We recommend that you use the default directories and don't move files. Configuration and start-up files are updated automatically.

**To install the software:**

- ◆ Insert UltraSound Disk 1 into your 3.5" disk drive A: or B:.
- ◆ From DOS, Type: A:\INSTALL (OR B:\INSTALL) <enter>
- ◆ Follow the instructions on screen.

*Note! If anything goes wrong during the installation, power down, restart your computer, and begin the installation again.*

**UltraSound Setup**

The setup program helps you choose the correct configuration settings for your UltraSound card.

The Setup window displays UltraSound's default settings. If no other device in your system uses these settings, select Accept; to change them, select Customize or Advanced. Selecting Accept starts a test to make sure the settings work.

<i>Set Up Record</i>				
<i>Record your setup information for reference when installing additional expansion cards and software.</i>				
	<b>Default</b>	<b>Customize</b>	<b>Advanced</b>	<b>Your Setting</b>
Base Port Address:	220	220, 240	210,220,230, 240,250,260	_____
Playback DMA Channel:	1	1, 3, 5, 6, 7	1,3,5,6,7	_____
Record DMA Channel:	1	N/A	1,3,5,6,7	_____
Sound Blaster DMA	1*	1*	1*	___1___
UltraSound IRQ:	11	2, 3, 5, 7,11,12,15	2,3,5,7,11,12,15	_____
Sound Blaster/MIDI IRQ:	5	2, 3, 5, 7	2,3,5,7,11,12,15	_____
16-Bit Base Port Address:	32C	30C, 31C, 32C 33C, 34C, 35C, 36C	30C, 31C, 32C 33C, 34C, 35C, 36C	_____
* Sound Blaster DMA cannot be changed.				
UltraSound Serial Number: _____				

**Customized and Advanced Setup**

- ◆ Select Customize or Advanced to change the settings. If you have to change the Base Port Address, see Appendix A in the User's Guide.

*Note! Advanced Setup lets you choose settings that may not work with your UltraSound software. Other cards using the settings you select may not be detected, or may indicate a conflict during the diagnostic tests.*

- ◆ Select Use Defaults if you want to restore the default settings.
- ◆ Select Test to confirm that UltraSound responds to the settings. (Selecting Finish also starts the tests.)



- ◆ Select Finish to automatically update your system files.

If an *Advanced* test fails, select Diagnostics to run more tests:

*Check I/O Address.* Checks that the address jumpers match your choice in the Setup and that the card is detected by the system.

*Check SBOS Mode.* Checks UltraSound's Sound Blaster emulation mode.

*Check DMA Channel.* Checks the selected DMA channel.

*Check UltraSound IRQ.* Checks the selected IRQ.

*Check DRAM.* Checks that UltraSound's memory is functioning.

*Check SB/MIDI IRQ.* Checks the selected Sound Blaster/MIDI IRQ.

### **Modifications to Your System Files**

Five lines are added automatically to your AUTOEXEC.BAT file (the numbers shown are the default settings).

SET ULTRASND=220,1,1,11,5

Tells applications what settings the UltraSound uses. The parameters are: Base port address, Playback DMA channel, Record DMA channel, GF1 IRQ, Sound Blaster/MIDI IRQ.

SET ULTRA16=32c,0,0,1,0 (*for UltraSound MAX only*)

Tells applications what settings to use for 16-bit recording. The parameters are: 16-bit base port address, not used, not used, MAX identifier, not used.

C:\ULTRASND\ULTRINIT.EXE -EJ

Resets the card and configures the selected IRQs and DMAs. By default, the joystick port is enabled (-EJ).

SET ULTRADIR=C:\ULTRASND

Tells applications where the UltraSound root directory is.

SET BLASTER=A220 I5 D1 T1

Tells applications which Sound Blaster settings to use. The parameters are: Base port address, IRQ, DMA, and card type.

The path statement is updated to include C:\ULTRASND.

- ◆ At the end of the installation, restart your computer.

### **Joystick Setup for Games**

Use FindCard to determine whether another game port in your computer will conflict with the UltraSound's game port. Use JoyComp to set the UltraSound's game port to the correct speed for your computer.

See Chapter 6 in your User's Guide for instructions.



## Windows™-Based Software

Windows-based software was installed automatically, and UltraSound drivers were installed into your Windows directory. Program groups will be installed the next time you run Windows.

### *An Important Note for MIDI Software*

UltraSound supports Windows patch caching to help applications make optimal use of UltraSound's memory by pre-loading only the sound files (*patches*) needed to play a particular set of MIDI data.

*To use a Windows-based music program that does not support patch caching, you can load patches using Patch Manager™ (see Chapter 3) or pre-load a subset of the General MIDI set (see "Patch Caching" in Chapter 2). This lets you hear sound with any Windows-based program.*

## Demos

Gravis has included several demos to showcase your UltraSound.

- ◆ **Type:** C:\ULTRASND\MIDIDEMO <enter>. Then try DEMO3D (Holographic), MODDEMO, and MIDI1MB (if you upgrade UltraSound's memory to 1 MB).

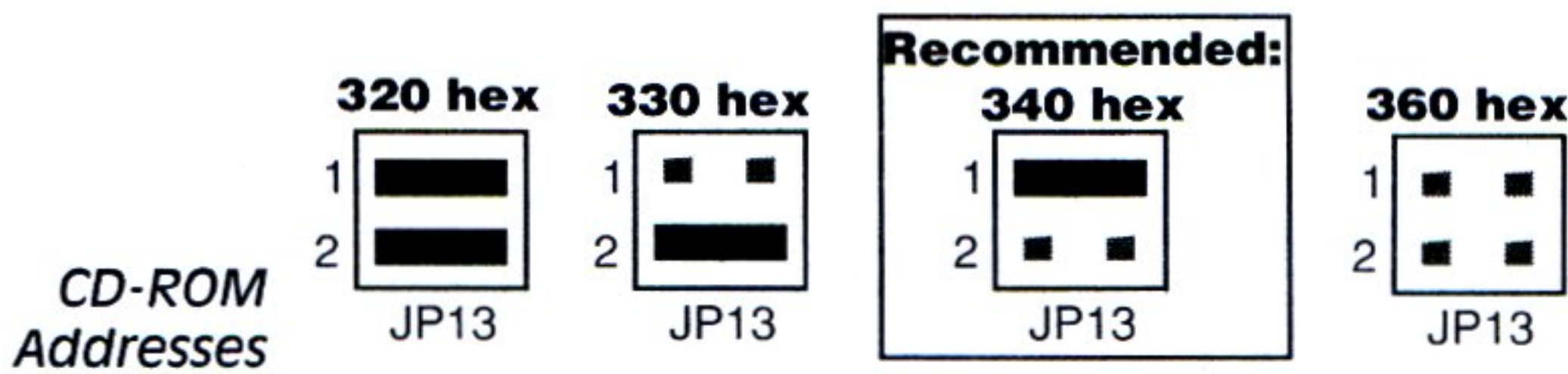
## CD-ROM Data Interfaces for UltraSound MAX

UltraSound MAX interfaces with Sony, Mitsumi, and Panasonic CD-ROM drives. Follow these instructions carefully. Unless you identify a conflict, use the default settings for best results.

### Jumper Settings

#### 1. Set the CD-ROM Address (JP13)

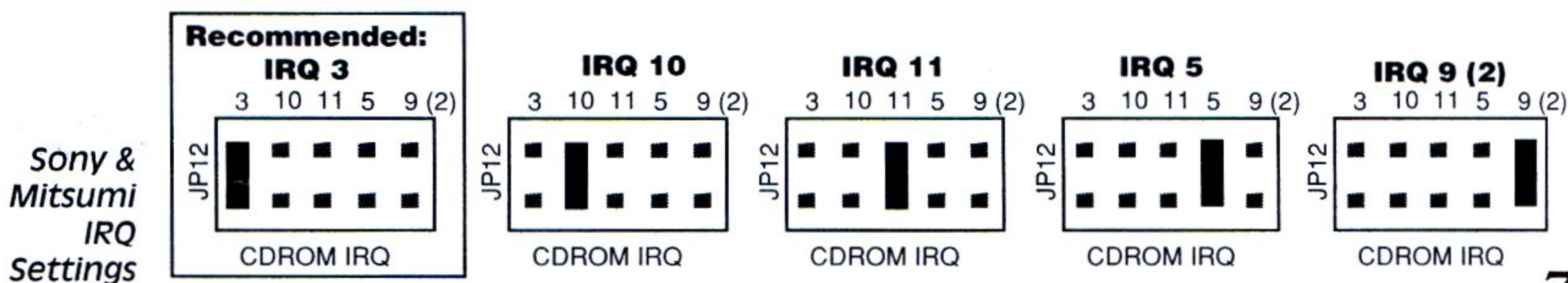
Install jumper clips as shown below. The factory-set default is 340 Hex. The setting must not be shared by another device.



#### 2. Select IRQ and DMA Channels

##### A) Sony and Mitsumi (for Panasonic, skip to B)

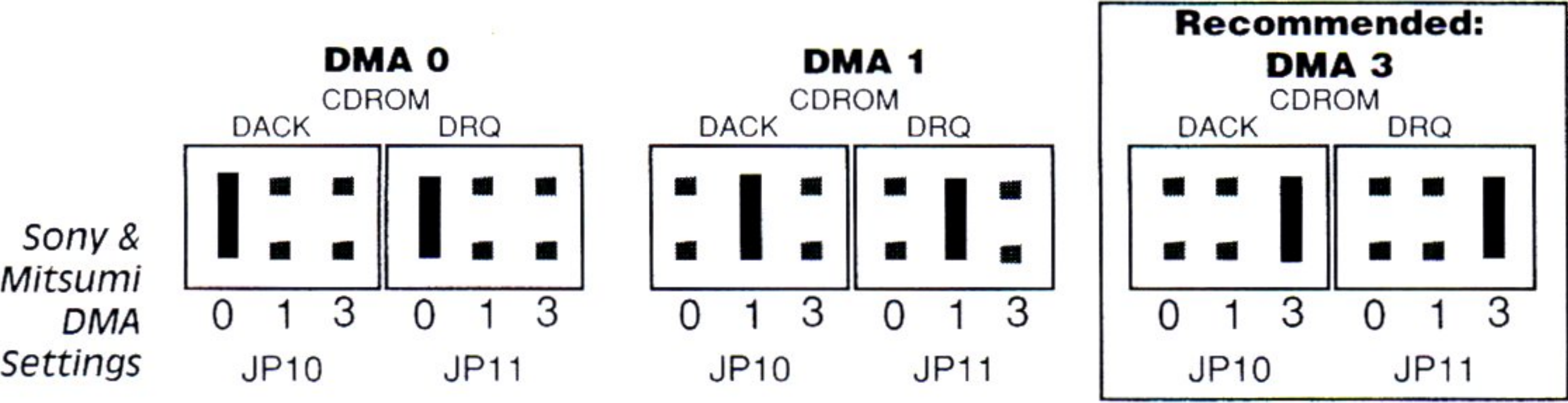
Set the CD-ROM IRQ (JP12). The default setting is IRQ 3. (The default setting may conflict with COM2).





Set the CD-ROM DMA Acknowledge (JP10) and Request (JP11). Both must be set to the same channel. The default is channel 3.

*Note! UltraSound does not support the DMA channels (5, 6, and 7) required for double-speed Mitsumi drives. If you have a double-speed Mitsumi, remove the jumper clips from JP10 and JP11.*



*Note! If you do not have an open IRQ or DMA, you can remove all jumper clips from JP10, JP11, and JP12 and operate in “polled” mode (without IRQ and DMA settings).*

**B) Panasonic**

If you have a Panasonic CD-ROM drive, remove the jumper clips from JP10, JP11, and JP12. Panasonic CD-ROM drives do not use DMA or IRQ.

**3. Select a CD-ROM Drive (JP6)**

**A) Sony and Mitsumi**

If you have a Sony or Mitsumi CD-ROM drive, remove the jumper clip from JP6 (Panasonic Enable).

**B) Panasonic**

If you have a Panasonic drive, install the jumper clip on JP6 to select Panasonic (this is the default setting).

*Note! To disable all CD-ROM interfaces, install a jumper clip on JP3.*

**Connections**

Three connectors are located at the end of the card: JP7 for Sony drives, JP8 for Mitsumi, and JP9 for Panasonic.

Connect the data cable provided with your CD-ROM drive from the CD-ROM drive to the appropriate connector on the UltraSound card. Pin 1 is at the top left of each connector.

See your CD-ROM drive’s instructions for installing any drivers that may be necessary to operate your CD-ROM drive.